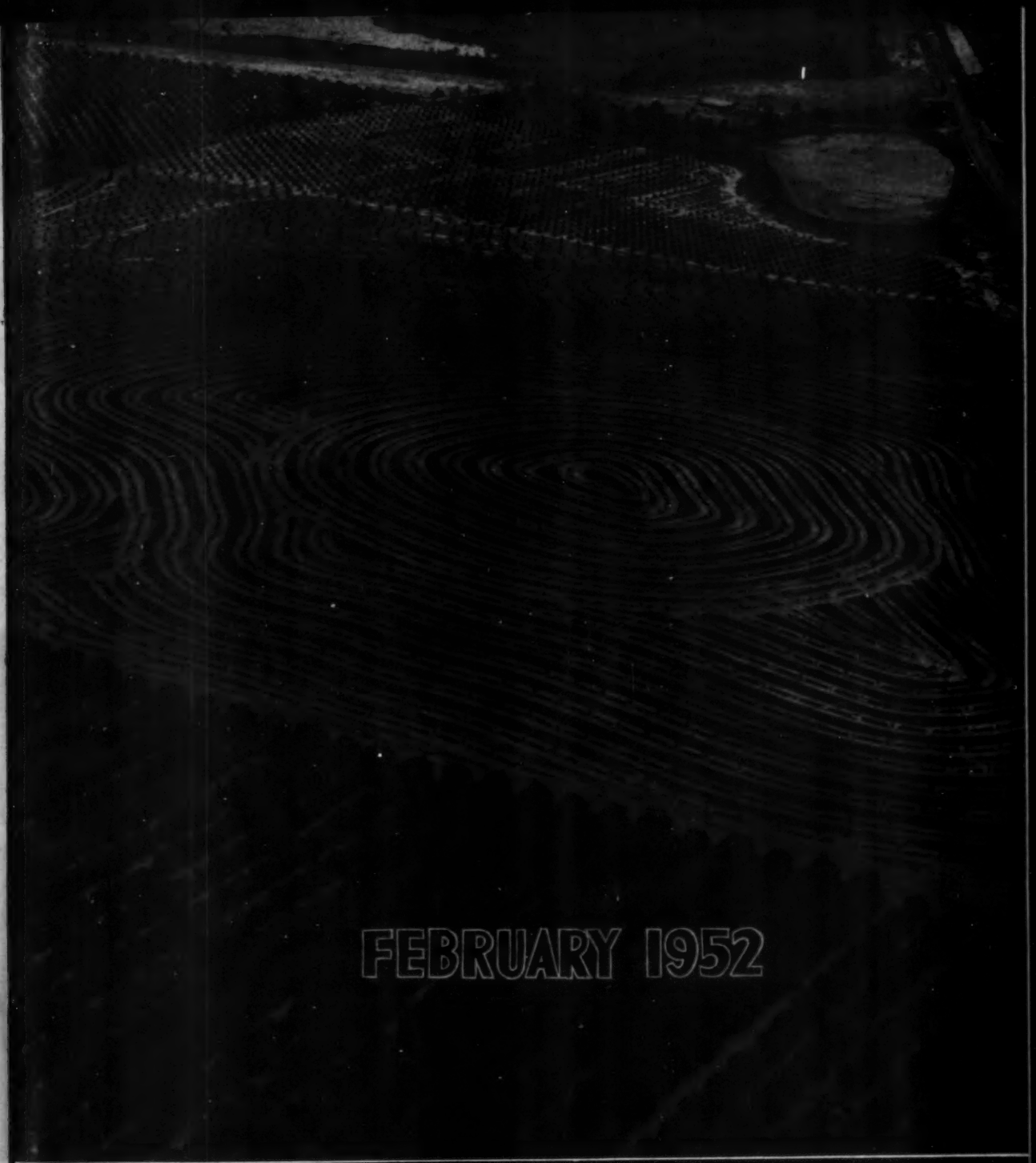

FEBRUARY 1952

SOIL CONSERVATION

OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE

SOIL CONSERVATION •

FEBRUARY—1952
VOL. XVII—NO. 7

CHARLES F. BRANNAN
SECRETARY OF AGRICULTURE

ROBERT M. SALTER
CHIEF, SOIL CONSERVATION SERVICE

ISSUED BY SOIL CONSERVATION SERVICE, U. S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D. C.

☆ THIS MONTH ☆

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WELLINGTON BRINK
Editor
Art Work by
W. HOWARD MARTIN

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, under approval (August 6, 1951) of the Director of the Budget. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

15 CENTS PER COPY **$1.25 PER YEAR**
FOREIGN—$1.75 PER YEAR
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THE WATER BEHAVES.—For years Andrew Delohery, a dairy farmer of New Fairfield, Conn., had been hampered by a swampy 12-acre field that separated his best fields from the farm buildings. Drainage ditches installed several years before failed to do the job required. Last spring SCS technicians, working with the Fairfield County Soil Conservation District, made a complete conservation plan for the farm.

Delohery built 3,200 feet of ditch at a cost of $880—about 27 cents per cubic yard of excavation. Cost of leveling and fitting the land for reseeding added $75 per acre to the expense. Of the $1,780 total outlay, PMA approved a payment of $360.48, making Delohery's net expense $1,419.52.

Delohery expects the land to be worth between $150 and $200 per acre when seeded to Ladino clover and reed canarygrass. Due to high test, he gets $6.40 per 100 pounds for milk. The 12 acres will bring a return of about $1,800 in feed the first year.

A hunter wearing rubbers, a week after a rainfall of 1.5 inches, walked over the field without getting his feet wet. It used to be that hip boots would have been needed.

FRONT COVER.—This intriguing fingerprint design shows a planting of citrus groves on the contour. The photograph, by John Busch, was made near Clermont, Fla.

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BOB SALTER: A FRIENDLY MAN OF THE SOIL

By WELLINGTON BRINK

AGRICULTURAL history was made in November with the selection of Dr. Robert M. Salter as Chief of the Soil Conservation Service.

In making his choice, Secretary Brannan was acting out of regard for the unique record of the Service in its work on the land, and in appreciation of the importance of the agency's role to all future generations. In a very real sense, he was choosing conservation leadership not only for the Nation but also for the world.

After shaking many hands at Service headquarters in Washington, the new Chief lost no time embarking on a 3-week trip to the seven principal nerve centers of his organization. He was anxious to talk things over with his men in the field, and to familiarize himself with developments, problems, and opportunities at ground level.

Dr. Bob Salter gets a handshake of congratulations from Secretary Brannan. The happy gentleman at the left is Waters S. Davis, Jr., president of the National Association of Soil Conservation Districts. Said Davis: "Dr. Salter has a big job ahead of him. Our Association will do everything possible to help him continue the work of his illustrious predecessor."

On November 21 an informal reception afforded Beltsville and Washington members of the SCS family an opportunity to meet and welcome Dr. and Mrs. Salter. Here they are in jovial conversation with Deputy Chief J. C. Dykes.

Even as I write this, Bob Salter is out meeting his team, and some of the people cooperating with his team. As soon as he can, he hopes to see and talk with innumerable other people who have the future of the American land at heart—district farmers, farmers not yet in districts, businessmen and bankers, teachers and students, civic leaders, garden-club members, partners in soil and water conservation on the staffs of State and Federal agencies, district supervisors, SCS technicians.

Every reader of SOIL CONSERVATION Magazine will wish to get acquainted with Bob Salter—hence, this short sketch by way of introduction.

Bob Salter (he likes his friends to call him that) was born at Huntington, Ind., March 31, 1892. He grew up in northwestern Ohio. Even as a youngster he had a strong affinity for soil and growing things.

Salter's love of land is exceeded only by his liking for people. Indeed, his administrative success stems in part from an exceptional gift for making

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Sara Salter is an enthusiastic partner in the development of Deep Creek Farm.

friends. He has won many a battle before it got started, by his ready smile and instinctive forthrightness. It was in the Salter character, on becoming director of the North Carolina agricultural experiment station, to resolve a difficult situation almost overnight by getting various competing forces in the State to pull together.

His eyes are gray, expressive; his face extremely mobile. All 5 feet 8 inches, 185 pounds, are trim and vigorous. His forebears were English. Voice is low, speech rapid, smile quick and boyish, manner informal. He is given to making his points by anecdote or illustration, rather than by flat pronouncement. Even a camera catches something of his great personal warmth. His pipe is one of his trade-marks.

Bob Salter says that he and his brother both "had wheels in their heads" when they entered Ohio State University. In mechanical engineering Bob made straight A's. When their father bought another farm in 1910, however, both boys decided to be farmers. The same dean who at that time advised his star students against making the change soon thereafter adopted a little girl who was to become Bob's daughter-in-law.

The new Chief's particular and understandable pride is his family. He married the charming Sara Godfrey in 1917. There are four children, all married: Elizabeth Ann Phillips, Jr.; Robert M. Salter, Jr.; Barbara Jane Browne; and Richard G. Salter. All have made a start toward exciting, adventurous careers. Elizabeth married an Air Force officer, and the first of Salter's ten grandchildren was born at Anchorage, Alaska, when the temperature was 50 degrees below zero.

Bob, Jr.—a six-keys winner at Ohio State University—after a turn in naval aviation during the war, already has achieved laurels in aviation research.

The tall son-in-law, E. Broadus Browne, a plant geneticist, is resident director of the University of Georgia branch experiment station at Athens.

Richard graduated from Ohio State one day, joined the Navy the following day, celebrated his eighteenth birthday the next day, and now is doing research engineering on a hush-hush project of the Naval Ordnance Laboratory.

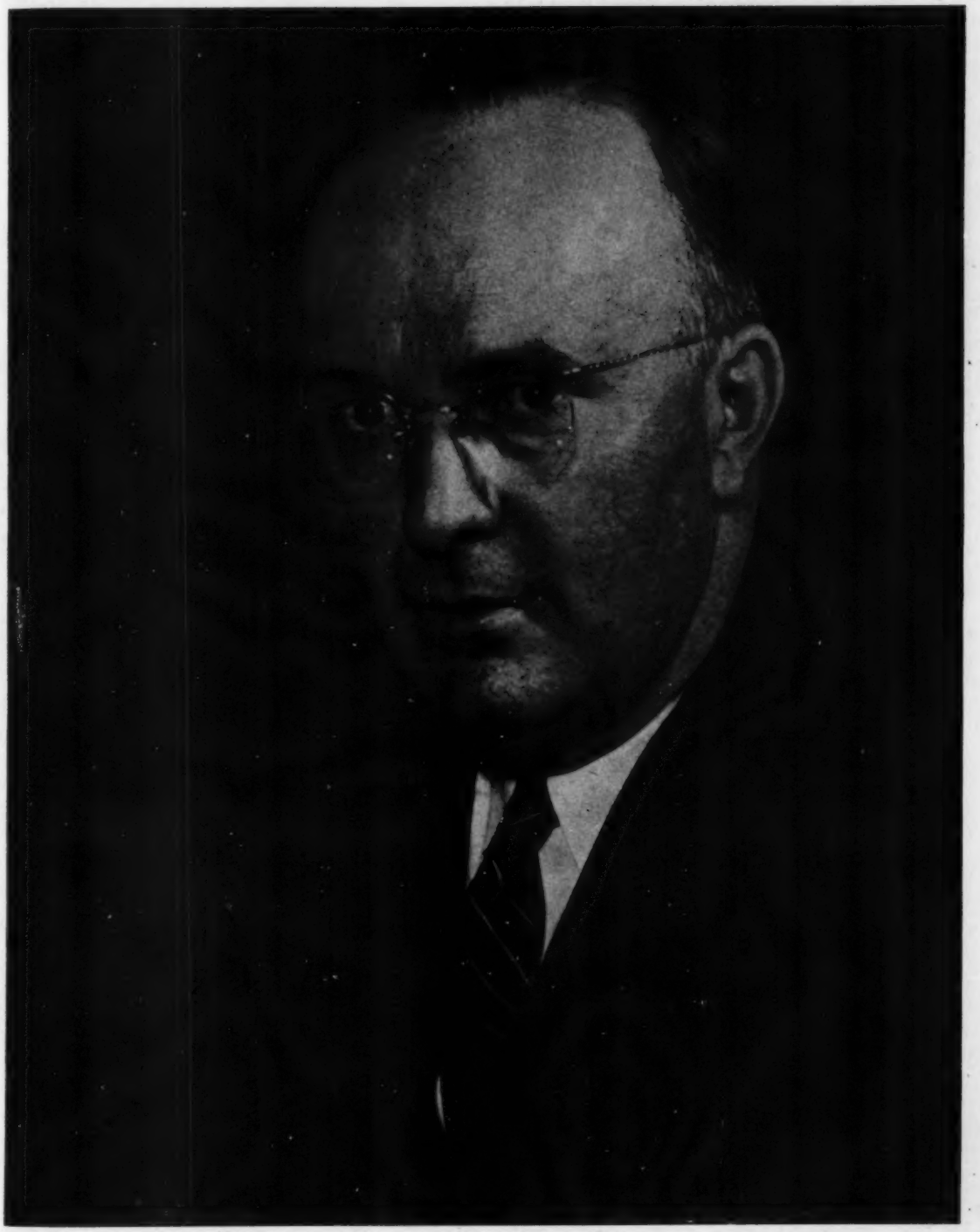
Dr. Salter, over and over again, has been everywhere in the United States, with the single exception of Maine. He knows every country in Central America, and a fair slice of South America. Few there are as familiar with the land of the Western Hemisphere. An agronomic and soil scientist of first rank, his attention has centered largely on soil management. For many years he was chairman of the National Joint Committee on Fertilizer Application; as a result of research stimulated by this body, there has been complete redesigning of farm machinery in this field. Particularly outstanding was Salter's work with limestone.

Conscious of the fact that "everything you do to soil makes it richer or poorer," Salter in his work in Ohio developed a "productivity index" which could be applied to any farm as a means of telling how rapidly it was going downhill or getting better. This index is being widely used not only in the Buckeye State but elsewhere.

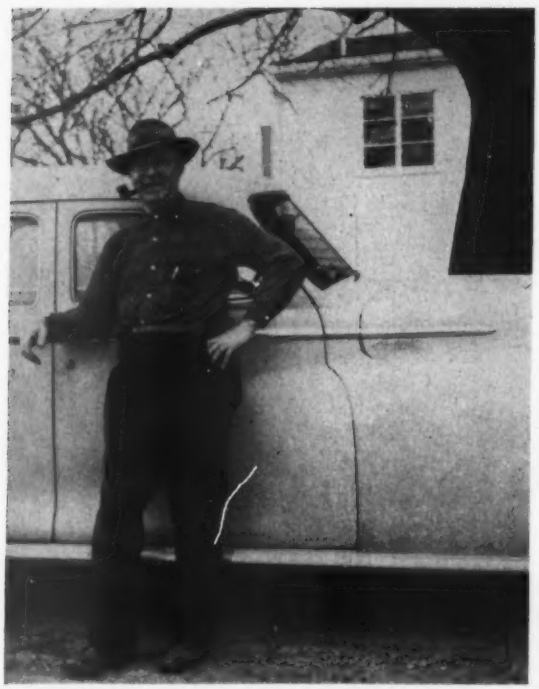
For work in agricultural chemistry, Salter was accorded a master's degree at Ohio State. Recognition also came in the form of an honorary Doctor of Science degree from Rutgers, in 1944.

Bob Salter lives an active and varied life. He plays very little golf any more—"I'm too erratic. My lowest score was about 83." Nor does he play as much bridge as formerly. He has hunted on occasion, but fishing suits him better. His particular pride and joy are gardening and landscaping, carpentry and cabinet work, in all of which he is a perfectionist.

At Wooster, Ohio, Salter's house of eleven gables, and the 5 acres surrounding, was a locally famed show place. There was a walled-in English garden



Dr. Robert M. Salter.



At his favorite retreat, Deep Creek Farm. The kitchen, glimpsed beyond the tree, modern in all particulars, is an addition to his house and a result of the Bob Salter dexterity with carpenter's tools.

with lily pond and fountain. There were fruit trees, and groves, hedges, and vast sweeps of carefully groomed lawn. The children grew up with a variety of pets—dogs, cats, a pony, even alligators. And the front yard saw many an exciting game of football and baseball. Today, the approach is by a street which the city of Wooster has designated "Salter Drive."

In 1948 the Salters acquired an historic 150-acre place on the Magothy River, in the Bay section of Maryland, about 35 miles distant from Washington. It was part of an original 1,000-acre grant to the first governor of Maryland, which bore the colorful and mysterious appellation, "Combination Defeated." Salter's "Deep Creek Farm" has 1,500 feet of frontage on salt water. "The soil is poor but beautiful to handle." As he can spare the time, Bob Salter is fixing up the house, and making a beginning with the land—which necessarily, to him, entails good management and conservation. There will be an orchard, an abundance of flowers, and lots of grass—including Kentucky 31. Some 90 acres are in woods.

Bob Salter is no newcomer to the soil conservation movement. He cooperated closely with the Soil Conservation Service at the very outset while directing soil research in Ohio. In this role he had a hand in the establishment of the first erosion experiment station in the United States, and in the first soil conservation demonstration project. During much of this time he was an official collaborator with the Service. And he has long been a strong supporter of soil conservation districts.

Dr. Salter came to the Service after 9 years as Chief of the Bureau of Plant Industry, Soils, and Agricultural Engineering, which is generally conceded to be one of the most smoothly operating units in all government.

HIGHLIGHTS OF A CAREER

Instructor, agricultural chemistry, Ohio State University, 1914-15.

Assistant soil chemist, West Virginia Agricultural Experiment Station, 1915-16; soil chemist and assistant professor of soils, 1916-19; agronomist and professor of agronomy, 1919-21.

Professor of soils, Ohio State University, 1921-25; chief in agronomy, Ohio Agricultural Experiment Station, 1925; chairman of department of agronomy, Ohio State University, 1929-40; associate director, Ohio Agricultural Experiment Station, 1940.

Director, North Carolina Agricultural Experiment Station, 1940-41.

Chief, Division of Soil and Fertilizer Investigations, Bureau of Plant Industry, U. S. Department of Agriculture, 1941-42; Chief, Bureau of Plant Industry, Soils, and Agricultural Engineering, 1942-51.

Chief, Soil Conservation Service, 1951.

Fellow (president, 1936) American Society of Agronomy.

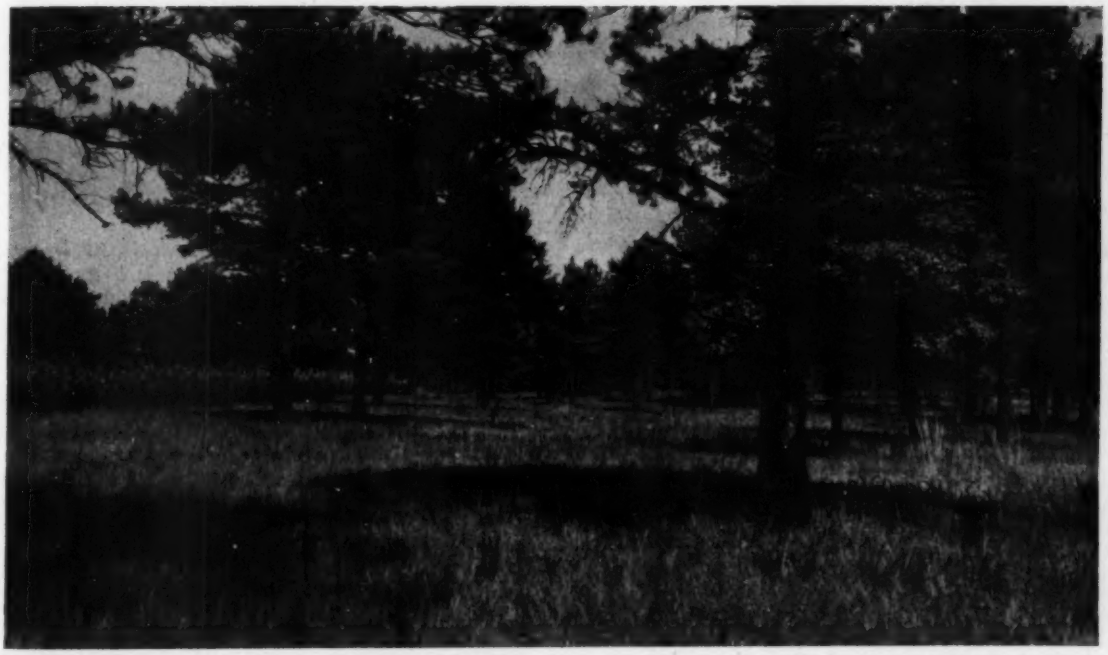
Fellow (vice president, chairman agricultural section, secretary) American Association for the Advancement of Science.

Member, National Research Council, Soil Science Society of America, and Soil Conservation Society of America.

Member, Sigma Xi, Phi Lambda Upsilon, Gamma Sigma Delta. Presbyterian.

Contributor to scientific journals, bulletins, and farm papers.

CARE AND MAINTENANCE OF BICOLOR LESPEDEZA



Quail country. (All photographs taken by the author on the Coleman Plantation, Union Springs, Ala.)

By WALTER ROSENE, JR.

FIGURES sometimes startle you. My most recent experience with surprising figures came at a meeting of State Biologists and SCS personnel held in Spartanburg, S. C. As representatives of the Southeastern States gave their figures on bicolor plants produced annually, the totals became impressive. Everyone was astounded when the final number of 50 million was reached. Production is expected to go still higher. These plants have been made available through Pittman-Robertson programs, and over 80 percent are distributed to farmers in soil conservation districts.

People in the Southeast can well be proud of this accomplishment. No other region is progressing so rapidly in developing wildlife habitat.

Since production of bicolor nursery stock has been so successful, the establishment and maintenance of plantings is of immediate concern. Quail like bicolor seed and most plantings are made for this game bird, but the care of the plantings is the same no matter what the intended use. Let's look at a typical planting made for the bobwhite.

Verne E. Davison, SCS regional biologist, has recommended 1/8-acre strips. This amounts to 660 square feet and is probably somewhere near the size required for a covey of quail. Davison realized that this size was practical from the standpoint of field operations, since it would utilize 1,000 1-year-old seedlings. Therefore, if a farmer were receiving 10,000 he would have sufficient for 10 strips.

Bicolor plantings fit into most farming operations. On farms where woodland joins a cultivated field there is a sapped strip of soil on the woods' edge where agricultural crops cannot be grown profitably. These field borders will grow bicolor. Strips may also be grown successfully in open stands of woodland. All plantings must be on

Note.—The author is a biologist, United States Fish and Wildlife Service, Gadsden, Ala.

well-drained soils and must be protected from grazing.

The average planting for quail is five rows wide, with the spacing between rows 30 to 36 inches, depending on the width of cultivator used for other agricultural crops. Seedlings should be set 2½ feet apart within each row. To use 1,000 seedlings in this manner will require a strip approximately 500 feet long. Sometimes it is necessary to alter the width or length of a strip to fit the land use or the space available. Cultivation is necessary the first summer when growth begins and may be done when other crops are worked. With a good stand of plants and sufficient growth, cultivation usually is not necessary the second growing season or thereafter.

It is best to prepare a site well ahead of planting, so the soil will settle. If many strips are to be established, fall preparation is recommended. Any type of plow may be used. Fertilizer can be applied in rows as strips are prepared and should be in the soil prior to planting. Complete fertilizer is recommended at the rate of 600 to 800 pounds per acre. Nitrogen may not be necessary on some soils but is recommended generally. Phosphate and potash are essential.

Good stands have been obtained with various methods of planting. Setting the seedlings by hand is best but also the most laborious. The quickest way is to open a furrow with a turn plow, drop the plants against the vertical side of the furrow, then cover them with another furrow throwing the soil at least 4 inches higher over the seedlings than their depth in the nursery row. A tractor wheel may be run alongside the plants to firm the soil. Any method which packs the roots in well-settled soil is good. November to April is the best planting time in the Southeast.

To be considered successful the first year, a strip must be free of weeds, make at least 5 feet of growth, and produce a crop of seed. Tests on yields of year-old strips have revealed seed production up to 350 pounds per acre. In subsequent years the stems should reach a height of 6 to 8 feet and have a seed yield of 300 to 400 pounds per acre. If a strip fails to attain this height, weeds will grow beneath the bicolor stems and only a light seed crop can be expected. In this condition the planting is nearly worthless to quail, and a maintenance operation is necessary. It is essential for seeds to fall on soil free of weeds if they are to be available to quail. Since bobwhites scratch very little, the seed must be found easily.

After the first growing season, it is usually desir-

This bicolor planting was done with a plow March 22. A few of the stems are being covered with a hoe.

By June 23 many of the seedlings had made 6 feet of growth.

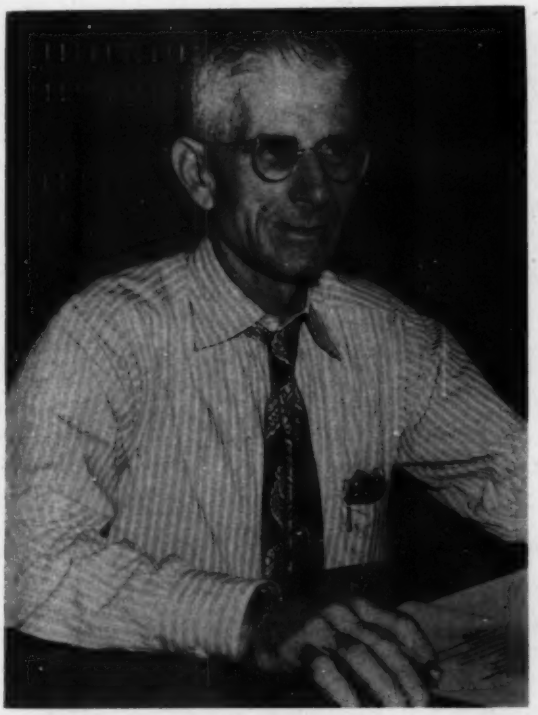
By November most of the stems were over 7 feet tall. Most of the leaves and some of the seed had dropped.

able to cut the stem back to 6 to 8 inches above the ground so it will sprout from the crown in the second growing season. This thickens the growth, makes more dense shade, and assists in weed control. In most cases the renewed top growth results in a heavy seed yield.

Periodic maintenance is essential for all bicolor plantings and should be carried out as often as necessary to keep the strip thick and producing seed. Experience indicates that on average soils maintenance treatment will be necessary about every third year. Deterioration of a planting is indicated by the following symptoms: (1) Invasion by broomsedge or other weeds, (2) short terminal growth, (3) light seeding. All of these signs are usually present when a patch is "on the way out." Cutting back, fertilizing, and disking may all be necessary to restore good growth. Fertilizing and disking probably are most important. Disking the strip destroys broomsedge crowns, and the application of fertilizer assures sufficient bicolor growth to shade out weeds and grass. Fertilizer should be broadcast on the strip at the rate of 600 to 800 pounds per acre. Disking then works it into the soil and destroys herbaceous growth.

Maintenance practices vary according to the scale of operations and types of equipment at hand. Where a large number of strips are to be handled, and where a variety of equipment is available, the tops are first cut with a brush cutter. Then fertilizer is applied with a drill and worked in with a disk. If a brush cutter is not available, the tops may be cut with a mowing machine fitted with a sharp blade and a new set of guards. In some instances strips have been disked without cutting back. Hand clippers and brush hooks have been used also, but the latter are not very satisfactory since they split the stems down to the crown.

If you want to hear the whirr of birds as you and your dog go exploring in the fall, try some bicolor—and give it the maintenance that will keep it producing.



Hugh D. Chamberlain.

DISTRICT PROFILE — CHAMBERLAIN of NEW YORK

Farmers in New York's outstanding Allegany County Soil Conservation District attribute much of the district's success to the sterling leadership of a natural conservationist, Hugh D. Chamberlain, of Caneadea. He has been a consistently good steward of the soil, as chairman of the board through 10 consecutive years—ever since the district was organized.

Allegany conservation farmers have shown their faith in Hugh's ability as a leader through reelections each year; but Hugh has just announced that he will not accept the job for another term. He thinks it is time to pass the job to other hands—time to spread the experiences he has had since January 2, 1942.

Before that, as a farmer and miller, Hugh Chamberlain plugged for soil and water conservation and good land use as a private citizen, who was among the earliest in Allegany to sense the erosion danger. Then, he became a charter member of the

County Land Use Planning Committee and later was one of the chief proponents in establishing the district.

Since then, well-deserved recognition has brought him to the chairmanship of New York's State Soil Conservation District Association, and participation in the National Association of Soil Conservation Districts, in which he has represented his State and district as a delegate.

Allegany is unique in that ever since the district started, board members who are not representatives of the county board of supervisors have automatically voted themselves out of office at the end of each 3-year term. This regular turn-over acquaints more farmers with the problems of the district, develops new leaders and scatters them over the county, and makes a stronger organization.

Two board members who represent the county board of supervisors remain in office until replaced by that body. This policy shows another instance of Chamberlain's leadership: He has been a member of the county board for more than 10 years. In Allegany the voting public has kept Hugh Chamberlain on the job! Now, he also is retiring from the county board. "Time to pass responsibilities in that job around, too." he says.

Chamberlain owns two river-bottom farms, one including hillside land. Both are covered by complete conservation plans in which establishment of improved pastures, woodland improvement and protection, and reforestation are featured.

Success of Chamberlain's stewardship is written in terms of district accomplishments: nearly 1,300 cooperating farmers with more than 170,000 acres under complete conservation plans, 9,500 acres of contour strips, 7,500 acres of pasture improvement, and 17,000 acres of crop rotations. It is spelled out in 220 miles of diversions, 1,100 acres of farm drainage, 50 miles of outlets and farm watercourses, 33 miles of stream-channel improvements, 9,200 acres of reforestation, and 27,000 acres of woodland protection and improvement.

From another angle, success under the Chamberlain leadership is found in the district's ownership and operation of 35 pieces of equipment ranging from two 6-D crawler-type tractors, a 20-ton truck and trailer, and four TD-14A's with blade, to a wood chipper, stump puller, and concrete mixer. In a modern machine shop and storage-supply building, leased and operated by the district, all the equipment is serviced by district mechanics.

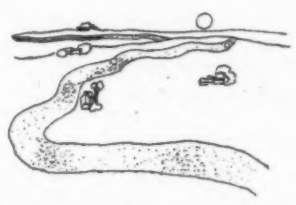
In addition, in a single year, the district has operated as many as a dozen other pieces of equipment obtained on loans from the Soil Conservation Service, the Allegany County Reforestation Committee, and other organizations. And, too, the district has employed the services of as many as 35 contractors, who have operated about 100 more pieces of equipment—nearly 150 pieces of equipment working for Allegany cooperators in a single year.

In spring-summer-fall working seasons, when operations are continuously at top speed, the district has as many as 15 full-time employees on its pay roll, for work with the 10 SCS technicians and aids. When tree-planting time comes each April, the district pay roll covers as many as 150 workers.

All this activity is part of the $80,000 business done by the district in 1949, and the $110,000 volume developed in 1950. It is emphasized in the current $20,000 bank balance beyond all indebtedness, and is reflected in such single accomplishments as building more than one farm pond every day through a full month.

Hugh Chamberlain does a lot of field work for the district and spends at least 1 day a month at the district office in the courthouse. When district demands are heavy and his time is short, he finds a way to *make* more time available, just as he did in World War II years when he sold his mill so he would have more time to devote to the district.

—Hugh F. Eames



300-MILE STRIP.—Complete reseeding equal to 20 farms of 120 acres each has been finished in New York State by the Tennessee Gas Line Corp. In laying a 24-inch line from the Pennsylvania border to Buffalo, then east to Albany, a strip 300 miles long and 4 rods wide has been smoothed and reseeded. Where slopes are steep, hay and straw have been applied as mulch to hold the topsoil in place until new grass gets started. The job involved planting 384,000 square rods, or 2,400 acres.

NOT ALL THE UPLANDS WERE DAMAGED

By A. E. McCLYMONDS

Incomplete conservation doesn't do the job. This land had been contour stripped but lacked terraces. Erosion ensued, as can be seen. Badly damaged itself, this field contributed to the silt load that created so much havoc in the floods. It is about 3 miles east of Gypsum, Kans., drains to the Smoky Hill River, which joins with the Solomon, Saline, and Republican Rivers to create the Kaw.

EROSION is credited with having levied a $200,000,000 toll in damage on the upland farms and ranches in the Kansas flood area in 1951, and contributed much to the silt load in the main streams and tributaries.

Very little damage to the upland occurred, however, on farms and ranches where complete conservation plans had been applied and properly maintained. Nor did so-treated farms and ranches contribute appreciable amounts of silt to the floodwaters.

This became apparent as reports came in to the Soil Conservation Service and as employees had an opportunity to interview farmers to learn what happened.

In each case, the experience was substantially the same.

Water that could not be held on the land was forced to go the way the farmer wanted it to go, by way of terrace channels and grassed waterways.

There was some silting in terrace channels where row crops were grown.

Some terrace breaks occurred, but the reports indicate that in no instance was the water able to break through a series of terraces on its way downhill; always, it was stopped and sent through terrace channels to the waterways.

During the storms, most farmers kept an eye on what was happening. As soon as they could, they got out for a close look. The color of the water in

(Continued on page 158)

Note.—The author is regional director, Soil Conservation Service, Lincoln, Nebr.

Nine Farmers MOVE Forward

THROUGH UNITY OF PLAN AND SPIRIT

By BARRINGTON KING

FROM tenants to landowners in an active neighbor-group program of soil conservation is the record of nine Negro farm families of Iredell County, N. C., in the Middle Yadkin Soil Conservation District.

Until a few years ago, most of the nine farmers were tenants on farms in the nearby neighbor group of which Roy Weber is the dynamic leader. They had seen the effective work this group had done by working together and when they bought farms of their own—most of them through the Farmers Home Administration—they asked the help of the Soil Conservation Service in developing a group plan.

Some of the group have been landowners for several years, like Conway Bailey, the group leader, who bought his 37-acre farm 9 years ago, and Sullivan Miller, who has owned his 74-acre farm since 1928. Others, like David Mayberry, a former tenant who bought his 99-acre farm a year ago through the FHA, are newcomers. But working together on common problems has welded the group together as an effective unit.

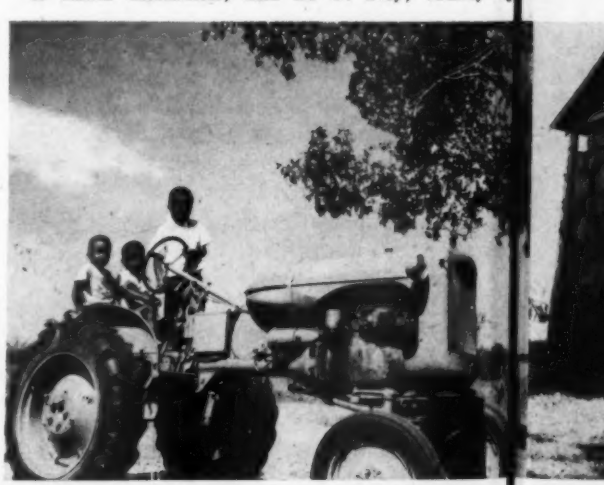
Other members of the group are Burgess Bailey, Curlee Bailey, Robert Bailey, J. L. Jones, Will Brown, J. E. Adams, Calvin Turner, John Henry Miller, and Walter Adams. With their wives and children, the group includes 79 persons in all.

(Continued on page 158)

Note.—The author is chief, regional division of information, Soil Conservation Service, Spartanburg, S. C.

Strip cropping of corn, alfalfa, small grain, lespedeza, and red clover of Burgess Bailey.

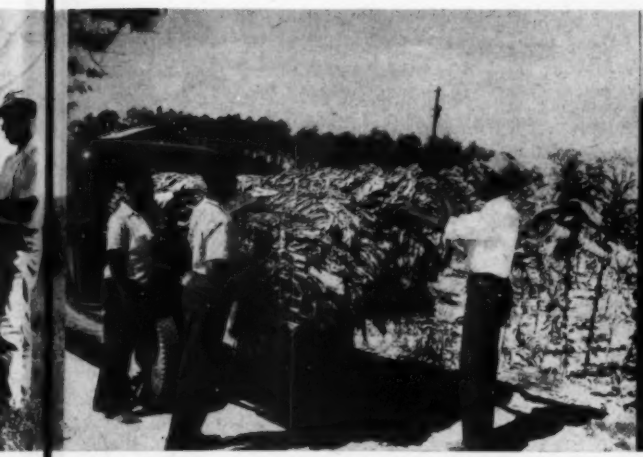
Standing in field of alfalfa are Q. W. Patterson, farm planner; Sullivan Miller, whose conservation program is under discussion; and D. O. Ivey, county agent.



Modern machinery appeals to young folks of all ages. The three sons of Calvin Turner are seen here on the tractor.

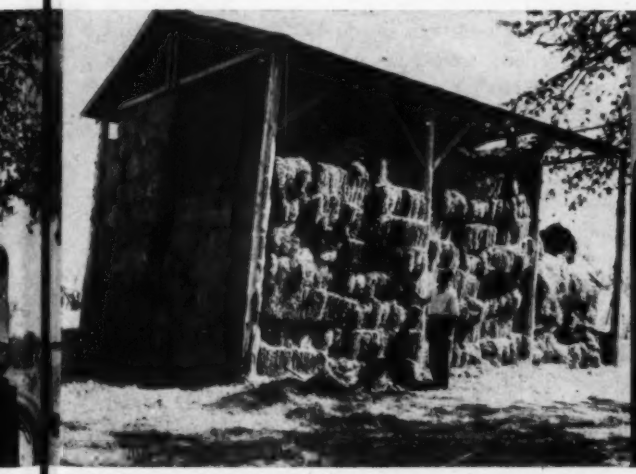
deza, red clover, with tobacco in background at right, on farm of Bu Bailey.

Some of the nine families in the neighbor group. Conway Bailey is at the extreme right in front row.



John E. Adams and sons, Thomas and Charles, examine a load of tobacco harvested on his farm.

Cotton shares the spotlight with hay on the farm of Robert Bailey.



With more than 700 bales of lespedeza hay to supplement green winter pastures, Conway Bailey is secure against whatever weather comes along.

Conway Bailey, his wife, baby, and mother, in living room of his home.

NINE FARMERS

(Continued from page 156)

Each member of the group has a copy of the joint district plan, which includes 14 farms, with a land-capability and land-use map for the entire 841 acres. Conway Bailey says that having their conservation activities brought together on a single map has in itself "increased the group interest a hundred percent."

"Working together in conservation has made them all stand up and take notice," Bailey declares.

Others have stood up and taken notice, too. This business of neighbors working together is a stimulating experience that has in it something of the missionary spirit, and their white friends in the Weber group have lent active assistance and encouragement to their former tenants in their group activities.

In carrying out their conservation programs, the group also has the active assistance of D. O. Ivey, Negro county agent, who works closely with the group and with C. C. Julian and Q. W. Patterson, SCS technicians in the Iredell work unit.

UPLAND DAMAGE

(Continued from page 155)

the waterways ranged from "clear enough to drink" to slightly roily.

Let's see what occurred on the farms of Roy Gfeller and Pete Ritter, whose farms are in the Republican River watershed. Both are in the Geary County Soil Conservation District. Gfeller is a member of the board of supervisors. Both have had complete soil conservation plans on their land for some time, Gfeller for 10 years and Ritter for 6.

"I've been over the whole farm and can't see any sign of damage," Gfeller said. "Did I watch the water in my waterway? You bet I did. It ran a foot or more deep and looked clear enough to drink."

He explained that while his land is terraced, it is also farmed in contour strips so that every other terrace is in a grass-alfalfa mixture. The structure of the soil has been improved greatly through the use of grass and alfalfa in the crop rotation.

"We had a foot of rainfall in 4 nights," Gfeller said, "and kept it under control. As for the wet season . . . I'll take it any time in preference to dry years. Besides protecting the land, conservation has improved production a good deal."

Ritter, on the other hand, had some sorgo that had been planted late and had made little growth.

"Oh," he conceded, "there was a little overtopping of a couple of terraces, but they weren't damaged. Naturally, some silt was washed down to the terrace channels and will have to be plowed out."

But as to damage. He doesn't figure that he suffered any worth mentioning. The wheatfields were still smooth, so he was able to harvest the wheat while it was still good.

One waterway, which gets water from a farm above, in addition to water from his own terraces, suffered some cutting but nothing serious.

"Does conservation pay? Well, I got my wheat, didn't I?" Ritter grinned. "But seriously, protecting the land like this and keeping the good soil at home has paid well."

Further east, in the Osage watershed, L. B. Frogette, Jerry Hobbs, Dwight Williams, and Ernest Tawney, in the Franklin County Soil Conservation District, told their experiences. The first three live a mile north of Princeton, Kans., where two highways cross, and Tawney is about a mile west of town.

"If there was any damage, I couldn't see it," Frogette remarked. "None of my terraces was overtopped. The only place where I figure I could have had trouble was where the water had swept newly cut hay to a terrace channel."

A lot of water ran through the spillway of the pond, but did no cutting.

"I have some land that was damaged, though," he said. "It is some that I rent, which has not been terraced. It was cut up pretty badly. It shows what my land would have looked like if it hadn't been protected by conservation. But instead, my fields are smooth."

Hobbs, whose father started the conservation plan in 1936 in cooperation with the CCC camp, before the district was organized, has continued to make improvements in the conservation system since he took over the farm.

"I guess I lost a little soil, because the water that ran off the fields was a little discolored," Hobbs said. "But I'd hardly say I suffered land damage except at one place. One bottom terrace broke, but the break was too low on the slope for the water to do much harm. There was a ribbon of silt less than a foot wide and as long as the break was wide in the grass at the foot of the field. There was also a little cutting in one waterway."

He has a large dam that was full when the big rains came. The spillway handled a lot of water, he said. Now, he wishes he had had a drop inlet through the dam so that the water level would have been low.

"I'd like to have seen how it worked," he said. "It's my opinion that I would have controlled the flow of runoff from this place."

Hobbs had only to go across the road for confirmation. Williams' pond has such a drop inlet through the dam, and no water flowed through the spillway. The drainage to the pond is mostly grassland.

"And yet," he recalled, "it rained so hard that the water from another drainage on the farm ran a foot or more deep across the highway, although it was almost clear."

Williams had been ill and could not get over the farm soon after the storm. The color of the water that crossed the highway, and which came mostly from row crops, convinced him that little damage was being accomplished. The drainage and waterways are principally in bromegrass.

"Bromegrass is wonderful stuff," according to Williams. "Look how it took the flow of water from this land and down the waterways, and it isn't hurt at all."

Tawney operates three rented places. He wasn't able to get to two of the farms during the big storm, he said, but he was out in the rain on the place where he lives. He started his conservation plan 7 years ago. But before that, he had experience on his dad's farm where "conservation has improved production so that he gets a nice living from a place considered pretty small for a family."

"Water flowing in the waterway at this place was slightly roily," Tawney explained. "But that was to be expected. You're bound to have some soil move when the ground is saturated and a heavy storm like that comes along.

"But no terraces were overtopped by the water. There was some silt in the channels. Not much more than I expect normally."

Roy Deay, about 7 miles south of Lawrence, and Perry McPheeters, 2 miles north of Baldwin, in the Douglas County (Kans.) Soil Conservation District, have farms which drain to the Kansas River.

Deay, who built all but two of his terraces with a moldboard plow, reports that water falling on his farm had to go the way he wanted—out through the grassed waterways. There was no overtopping of terraces.

"Water that came off the land protected by alfalfa or grass was clear," Deay explained, "but that which came off the row crops was slightly discolored. A little silt in the terrace channels is the only evidence of soil moving. The fields are smooth. There is no evidence of cutting."

McPheeters has some bottom land and also some pretty steep land in his place. The bottom land was just plain wet, and you couldn't do anything about that. But, he said, conservation really saved the day on the upland.

"The terraces held—no breaks at all," he recounted. "The water kept flowing surprisingly slow through the terrace channels to the waterways, and it was clear. If the water had been carrying any

(Continued on next page)

MAN WITH A MESSAGE

A timely and quotable quote from Leon J. (T-Bone) McDonald is this: "We have come to recognize soil conservation as a weapon of war and a peacetime necessity. Man and the land must be prepared."

"T-Bone" is a colorful westerner, with a Billy Sunday flair for speaking, who has been much in demand for platform services in as widely separated parts as Florida and North Dakota. He began work with the Soil Conservation Service almost at the outset, way back in 1935, and today is assistant State conservationist for Oklahoma. His talks are replete with anecdote and illustration. One of his favorites is about the white man, heap crazy, and the Injun, smart and lazy:

"White man make big tepee. Plow hill. Water wash, wind blow soil. Grass gone, land gone. Whole place gone to hell.

"Indian smart. No plow land. Keep grass. Buffalo eat. Indian eat buffalo. . ."

McDonald talks with his whole body, and captivates his audiences. Soil erosion is a very personal enemy. Edward J. Meeman, editor of the *Memphis* (Tenn.) *Press-Scimitar,* calls him "an educator, evangelist and entertainer all in one delightful package."

appreciable silt, there'd be some evidence in the grass, but I can't find any."

McPheeters started on his conservation plan 5 years ago. Terraces and contour farming are necessary but by no means the whole answer, he holds. He practices a crop rotation so that no land is in crops more than 2 years in succession. The rest of the time it is in grass or alfalfa or a grass-alfalfa mixture.

"The structure of the soil is a whole lot better than formerly," he said. "This makes it possible for the soil to take in more water and hold together better. Water can't move it so easily. I consider this rotation just as important as any other part of the conservation program.

"Can a farmer really afford it? On my place, at least, production has increased materially since I put this conservation plan on the land. I have bigger yields while the land is in cultivated crops, so I don't have to cultivate so many acres. And I have more land producing grass for pasture, hay, and seed."

Just how much water these farms had to handle is indicated by the fact that the season was too wet for alfalfa in the Osage and Kansas River drainages, both on farms with and without conservation plans. The farmers there got a good first cutting of hay, then the alfalfa began to die—flooded out.

All these farmers had developed complete conservation plans with the aid of the Soil Conservation Service. Their land is used within its capabilities. The right combination of conservation practices is used according to the needs of the land. Not only were these conservation plans fully applied, but they were properly maintained.

The examples cited here do not imply that there was not extensive damage to upland farms where some conservation practices had been established. There are many hundreds of miles of terraces where breaks must be repaired and terrace channels cleared. Some terraces were not backed up by other conservation practices; others could have held except for lack of proper maintenance of the terraces or other conservation measures. But everywhere the worst erosion damage was to unprotected land.

The lesson to be gained is that damage on upland farms would have been reduced to insignificance if complete conservation had been applied to all of them. Damage on bottom lands likewise would have been reduced. The upland would have kept its productive top layer of soil at home.

MAPPING FROM THE AIR

By O. E. McCONNELL

SHORTLY after noon one day last summer a small airplane flew over the Gilmore McLeod ranch near Brownlee, Nebr. It was piloted by the rancher's son, Gordon, but this time he wasn't using the plane as a substitute for range riding to look after livestock.

He had a passenger—Don Sylvester of Valentine, Nebr., work unit conservationist with the Cherry County Soil Conservation District. Sylvester was mapping the features of the ranch on an air photo: the range sites, dry valleys, wet valleys, old fields abandoned for cultivation, fence lines, windmills, and so on.

They were making the preliminary survey that is necessary in developing a soil and water conservation plan for the ranch. It is one of a number of cases where Sylvester has been taken up in a rancher's plane for this purpose, with substantial savings in time.

"It took us just 1 day to complete development of the conservation plan for the 9,000-acre ranch," said the young technician. "My experience is that it takes three full days to do the same thing entirely on the ground."

But there is more than timesaving to be gained. From the air, one gets a clear view of many things that cannot be observed properly from the ground.

Distance is a big problem in ranching areas. Roads are often little more than winding trails, making travel slow. Reduction of the amount of time spent in traveling—to and from a ranch and also over a ranch—is a matter of prime concern.

Cherry County contains over 6,000 square miles—as much as Connecticut and Rhode Island combined—and 90 percent of the area is sand hills, through which there are only two highways. All other roads are winding trails through the sand hills.

It is 50 miles from Valentine to Brownlee, from which it is necessary to drive another twenty-odd miles westward to the McLeod ranch. It takes a

Note.—The author is regional chief of operations, Soil Conservation Service, Lincoln, Nebr.

good 2 hours to get there. Then, working on the ground, much time would have been spent over the ranch to determine acreages of different kinds of range and to spot fences, watering places, ranch roads, and other features pertinent to range management.

"Gordon McLeod suggested that the ranch could best be seen from the air," Sylvester says, "so up we went. We were up only about 45 minutes, but did a better job than if we had spent many hours on the ground. Furthermore, we knew where to go to get the information that must be obtained on the ground."

Following the plane trip, McLeod and his two sons checked range conditions and discussed range-conservation measures and grass seedings for the formerly cultivated, but now abandoned, fields.

Donald Sylvester and Arnold Fink ready to take off on a preliminary survey of Fink's ranch 70 miles southeast of Valentine, Nebr.

In the evening, the McLeods and Sylvester, aided by the information that had been recorded on the air photo, developed the plan of conservation operations for the ranch.

The job was completed in a single day.

While the use of small planes has shown up to advantage in speeding up soil and water conservation plans in this ranching area, Sylvester said, not all of the job can be done from the air.

"One can tell the degree of utilization of the current season's growth of grass from the air, and also the different kinds of range sites," he explains, "but you cannot determine range conditions from a plane. That must be done on the ground. Outlining the range sites from the air saves a lot of time, since the only job on the ground is to determine current range conditions. The range site (that is, the kind of range land) determines potential range cover and productivity.

"Need for many of the conservation measures can be determined from the air. Among them are areas where mowing is needed, where watering places should be developed and salt provided in order to get grazing properly distributed. It is easy to discern the pastures or parts of pastures that need adjustments in stocking rates, the boundaries of blow-out areas, and where cover is so thin that blow-outs threaten."

Another experience cited by Sylvester deals with the use of an airplane for determining the boundaries of a drainage and other physical features before designing a large water-spreading project. This was on the Arnold Fink ranch, 70 miles southeast of Valentine. Fink flew to Valentine to pick Sylvester up, and returned him to headquarters the same day.

"It would have taken at least 3 days to make this preliminary survey from the ground, and it still wouldn't have been so good," he says. "Part of the drainage area was rather swampy, and we would have had to walk. We could have seen little under those circumstances.

"As it turned out, the drainage was easily defined from the air, and the nature of the landscape observed. We hope to eliminate swampishness of a part of the drainage through control of the runoff, as well as improve grass production of the whole area."

Fink is the only rancher thus for who has flown to Valentine to get him, but others will come any time he suggests it. Most of the time he feels that it is better to drive to the ranch, for the reason that most small planes have insufficient space for the equipment that usually must go along.

The light plane can also be used advantageously in checking the progress and effectiveness of soil and water conservation measures. Sylvester learned this when Loren Boyer, whose ranch is 54 miles southwest of Valentine, took him up. From the air, he could note the progress of the new tree plantings, the effectiveness of the blow-out control measures, and the utilization of the range. The progress in healing blow-outs is revealed by comparing the new view with the former air photo.

Although the use of the airplane speeds up the gathering of information and gives one a better chance to size up the conservation job, Sylvester

adds, it is not quite so easy to make notes and outline features on the air photo. On the ground, one can stop the car while he does these things, but not in a plane. It keeps moving, and the mapping must be done rapidly.

"As you can see," he says, "there are some small disadvantages to using the plane. But compared with the advantages, they are insignificant. And the saving in time makes it possible for me to serve more of the district cooperators. Since the district supervisors always have a backlog of applications for technical aid, this saving of time is vital."

Not the least of the advantages, Sylvester concludes, is the greater comfort of plane travel compared with bounding around on rough ground in a jeep.

LEROY FAUST AND HIS HORIZONTAL WELL

By LAWRENCE D. HAAG

WITH water and its management demanding more and more consideration on Pennsylvania farms, the experience of LeRoy Faust, R.D. 1, Weatherly, Carbon County, demonstrates the extent to which some farmers will go to get a supply.

Faust's experience is unusual because his well is horizontally drilled. It's a center of interest for visitors at the 256-acre farm, 5 miles south of Hazleton, where he lives with his 75-year-old father, his wife, and two daughters. He works part time in coal mines.

LeRoy has been interested in soil and water conservation for many years. In 1940 Ted Hebel, SCS technician, helped him make a complete conservation farm plan and lay out his fields for contour strip cropping. It was one of the first eight pilot demonstrations established under the joint program of the Soil Conservation Service and the old Agricultural Adjustment Agency, now known as Production and Marketing Administration.

Because LeRoy is convinced that soil and water conservation is vital to the welfare of any community, he helped neighbors organize the Carbon County Soil Conservation District in February 1947. He has been a leader in the district ever since, is its director and secretary-treasurer, and has his own complete conservation plan in effect.

The farm's water supply originally came from a natural spring in the lowlands below the buildings. Because it often failed in dry weather, a vertical-type well was drilled near the house, water being located at 70 feet. But the water there is very hard and not to the liking of the Fausts. Besides, it had to be pumped and that required maintenance and electricity costs to keep it running.

From their mining experience, LeRoy and his father knew that water often can be a problem rather than an asset. Many times they had worked with feet and clothes wet from water dripping or seeping from the walls or oozing from the floors of the mines. So they decided to prospect for a new supply in the wooded mountain back of their house and barn.

They started digging a hole a little wider and not quite so high as a standard house door back into the hill, just the way miners do when they open a small coal mine. At first the going through the soft earth under the forest trees was easy, but the "roof" had to be supported on heavy planks and timbers resting on top of big posts. Earth and stones had to be moved out and carted away.

They hadn't gone more than 50 feet into the hill before they struck solid rock—but no water. This would have completely halted the most of us, but not the Fausts, who knew how to make tough, hard coal "rock" yield. They applied mining techniques and little by little worked their way back farther into the mountain.

For 2 years they kept hammering away every spare hour they could find, while keeping the farm work and mine jobs going. When they had a tunnel-like hole about 175 feet in the hill, mostly through

Note.—The author is district conservationist, Soil Conservation Service, Allentown, Pa.

LeRoy Faust at entrance of tunnel.

solid rock, there still was no water. Disposal of rock was becoming more of a problem. Each rock had to be carried farther and farther to the outside opening.

The Fausts didn't know the meaning of "quit," but they did realize that they would have to alter tactics. With the feeling that the water vein might lie only a few feet farther back in the rocks, they decided to see if a well driller might help. Ordinary drillers have little trouble sinking a vertical well from the surface of the earth, but what the Fausts wanted was a "horizontal" well so that water would run to the house and barn by gravity. They never seemed to think about "if" they would strike water; it was always "when."

When they found a driller who was willing to try, they helped him rig up 175 feet of 4-inch pipe through which he aimed his diamond-headed drill and started to bore a 3-inch hole back through the solid rock. He went 100 feet, still without success. "Keep going," said LeRoy.

Finally at 104 feet beyond the end of the 175-foot tunnel—279 feet inside the mountain—the drilled hole became wet. The elusive water the Fausts had been seeking began to seep into the hole. It was clear and soft, with no trace of acid. The flow, while not great, was enough, LeRoy thought, to satisfy the normal needs of his family and his livestock.

There was still more hard work to be done before the Fausts could get the water where they wanted it. Near the inside end of the tunnel and about 15 feet from where the water trickled out of the breast-high drill hole, they built a concrete retaining wall. Heavy wooden planks were lugged in and cut to make a form to hold concrete mixed by hand and brought in to make a wall. With water in sight and no more rocks to cut away, the rest was easy. Iron pipes were cast in the bottom of the retaining wall, which serves as a dam to impound over 2,000 gallons of water. Other pipes were connected to lead the water to the house and other buildings.

You can get a drink of this horizontal-well water at LeRoy's home now, but it tastes best if you take a flashlight, as I did with him one hot July evening, and walk back into the tunnel. There an aluminum cup rests on the top of the retaining wall for you to dip some of the clearest, coolest, most refreshing water you ever tasted.

LeRoy has 40 acres of contour strips, 800 feet of open field drains, and 400 feet of diversion terrace. He has 2 cows, 4 steers, 2 hogs, and 150 hens, and grows 4 acres of potatoes, 1½ acres of truck crops, and grain to feed his livestock.

From lumber cut in his wood lot, LeRoy and his dad have built four service buildings. They have made their own concrete blocks and built a garage, farm shop, and potato-storage cellar that they wired for electricity. For servicing their car, truck, and tractor tires, they have installed their own air compressor.

The Fausts know and appreciate the value of good, pure water. They worked hard to get it. They continue to work hard through the Carbon County Soil Conservation District to protect and conserve soil and water — both precious natural resources.

CANNY BUYER.—W. A. Dolan, of Augusta, Ga., had a 2,200-acre farm for sale in Aiken County, S. C., and McKendree Barr, of Leesville, S. C., was a prospective purchaser. Dolan had been doing a good job of soil and water conservation in cooperation with the Edisto Soil Conservation District. Appraisers of the Federal Land Bank at Columbia used the land-capability information in making their appraisal. The upshot was that Barr bought the farm—sale price, $83,500.

Dedekam purebred Holsteins on irrigated pasture.

MORE MILK FROM IRRIGATED PASTURE

GEORGE DEDEKAM, of Santa Rosa, Calif., owns a herd of cows which averaged 446 pounds of butterfat last year. He is one of many young western newcomers to dairying who is making soil and water conservation pay.

At 29, Dedekam has picked up a lot of dairying knowledge since he began helping his father C. F. Dedekam, a retired San Francisco insurance broker, turn a 385-acre dry-land hay farm into a Grade A dairy enterprise.

Folks still remember how the elder Dedekam put in one of the first flood-border irrigation systems in the Central Sonoma Soil Conservation District soon after taking over the farm. Three of his neighbors have that type of system now.

Dedekam gave up an office job in San Francisco to work with his father. Already his father had taken a long step in good land use. He had started fattening feeder calves on dry-land pasture. When the feeders didn't put on weight quickly enough, SCS technicians helped him level and lay out 20 acres of improved pasture. They also selected the right mixture for the pasture—Ladino clover, trefoil, alfalfa, tall fescue, alfalfa and Dallisgrass—and gave him suggestions on fertilizing.

The two turbine-pumped wells dug by the elder Dedekam yielded enough water to flood-irrigate 10 acres and sprinkle 2 acres a day. His calves made good gains in weight. But beef's fluctuating prices gave many anxious moments. Dairying looked much safer and peaceful over the long pull.

George Dedekam became a farmer about the time his father changed from beef to butterfat production two summers ago. Dairying called for more shifts in operations. It was necessary to build a Grade A milking barn. Then the Dedekams bought 40 first-calf heifers—the beginning of a 104-head milking string.

Father and son worked together to put more conservation on the land. Fifty additional acres went in irrigated pasture. When one main ditch, supplying water to a sloping 20-acre field, began to wash badly, they showed themselves to be good conservationists by switching from flood irrigation to sprinkler irrigation.

The 70 acres of irrigated pasture is divided into nine fields. Each field is grazed about 3 days on a rotation schedule of approximately every 27 days. A crop of 80 tons of hay was cut from the pasture this season.

Dallisgrass was added to the second 50-acre seeding. George Dedekam says that cows prefer Dallisgrass to Alta fescue. He would like to have more Ladino clover in the pasture.

Young Dedekam isn't greatly concerned about the 30 inches of rain that falls from November to March in the Santa Rosa country. Water goes on as soon as cows are off a field. He sprinkle-irrigates 20 acres, putting on about 31,000 gallons per acre every 10 days. He uses flood borders to irrigate the rest of his improved pasture. He irrigates every

15 days using more than one-third more water per irrigation than with sprinklers.

So far, SCS technicians have helped stake out and level 70 acres for flood irrigation. Less water is used and better coverage is obtained by spacing the 300-foot-long check dikes 18 feet apart. Soils are fertile and deep, and of a heavy loam type.

Today George Dedekam is approaching his goal of being a good pasture manager and grazier. He doesn't believe in skimping on forage. There is enough good forage on the 40 acres his herd uses to feed 50 cows. He credits the good fat marks his herd is making largely to soil and water conservation.

Here are some of the pasture practices that the Dedekams find helpful. Irrigated pastures are well fertilized. Only about 2 to 3 acres can be fertilized a week now. They hope to fertilize most irrigated pasture before summer's end. They use droppings and not litter. They figure the 7 cubic yards per acre put on amounts to well over 100 pounds of nitrogen and phosphate acid per acre. They say their cows like fertilized better than nonfertilized pasture.

Every fall and spring George has been applying 300 pounds of superphosphate (60 pounds of phosphate acid) per acre. He reasons that by using chicken manure he can get along with one phosphate application a year.

He also applies liquid manure through irrigation. The manure washed out of his barn goes on hay land.

Cows are on the irrigated pasture about 8 months in the year. From Christmas to March 1 they are fed about 25 tons of purchased hay a month. Last year he turned his hay crop into 400 tons of silage. He will feed more of his own hay from now on.

George Dedekam's pasture is older and better established now. He expects his cows to beat last year's production average of 446 pounds. April DHIA records showed that several cows in his herd produced more than 100 pounds of butterfat. One Holstein had an April 1951 output of 104 pounds. Ten cows gave more than 80 pounds that month.

George Dedekam at door of milking barn, one of the most modern and complete in county.

FOUR YEARS OF STEADY PROGRESS

By MARION F. EUBANK

FOUR years ago I inherited 11 acres of land. I bought 29 acres more, including a small house, one tobacco barn, and one not-too-good combination tobacco-livestock barn.

My wife and I, taking inventory, found that we owned 40 acres of land and buildings, plus 10 milk cows on 40 acres of rented pasture, plus one horse, plus part interest in a small tractor, a car, and a few small implements. A hurried look around showed that everything except the tobacco barn needed repairs; yes, even the horse.

The dwelling had electricity, but no water. Inasmuch as we were in a limestone region of small underground caves, we couldn't expect to get a successful well, and our 40 acres had no permanent source of water. Even the 5,000-gallon underground cistern was leaking. We had plenty of other problems, too, but the immediate ones were what to do first and where to find out some of the things I needed to know.

I decided to spread out a little by operating some additional land on a share-crop basis. This called for additional manpower. I arranged to build a small tenant house and made a deal with Kelly Manning from the mountain section of Kentucky to move in with his wife and seven children.

In November 1947, I heard that a man had come to our county to be a soil conservation district farm planner. I hustled into town to find out what the district had to offer. After discussing some of my problems with him, I made application for district assistance.

Note.—The author is a farmer in the Grass Lick community, and a supervisor of the Montgomery County (Ky.) Soil Conservation District.

Early in 1948, Mr. Ellis, of the Soil Conservation Service, came out to our farm with what he called a land-capability map. At that time, it didn't make much sense to me. Later, I learned to look at that map with a lot of interest and respect.

Ellis and I started out to make a farm plan. One of the first things I learned was that I had about 10 acres of what he called Class II land, 4 acres of Class III, and 6 acres of Class IV. The remaining 20 acres were Classes VI and VII.

In a nice way, he pointed out that all the land I had in cultivation at that time was Class VI, which shouldn't be cultivated at all. He also showed me that I had 10 acres of Class II land in good bluegrass that should be switched to row crops, and that the steeper land that I was preparing for crops should be put in grass.

I won't explain now my thoughts at the time. We went ahead and finished a farm plan that called for a great many changes, and for doing several things that were beyond my knowledge. I told Ellis as much. He promised to help me with the new ideas, and I'll add right here that he lived up to his promises. My conservation program now is just about completed as it was planned.

The first job completed on my farm probably did more than anything else to convince me that conservation farming would pay. That was building a channel to divert runoff water from about 10 acres of steep land away from a half-acre bottom that I had been unable to cultivate.

The first year in cultivation, that half-acre made a burley tobacco crop that I sold for $650. My entire tobacco crop for 1948, as a result of making the recommended changes, sold for $3,065, as against $2,089 for the 1947 crop. That was an increase of $976. The tobacco crop from the same land in 1949 brought $4,200, or an increase of $1,135 over the previous year. My average per acre over the 3 years increased from 1,400 pounds to 1,820 pounds. I'm giving a lot of credit for this increase to the proper use of my land-capability map, and the proper treatment of each acre.

I also started in 1948 a pasture-improvement program that included adequate water for my cattle. By studying the land-capability map, Ellis selected two possible stock-pond sites. To me this was important because in 1947 and 1948, before I had gotten around to building the ponds, I had to buy and haul water from Mt. Sterling, 6 miles away, for 2½ months of the year. This took at least 4 hours' time every other day, or 60 hours a month, plus the cost of the water and hauling. I now have two ponds that will give me plenty of water. They cost less than $100 each.

In the meantime, I have fully treated and reseeded 15 acres of pasture and treated the other 15 acres according to what was needed, as indicated by soil tests made by the county agricultural extension service. I don't have a record of my income from dairy products for 1947, but for the past 3 years it has been: 1948, $1,036.54; 1949, $3,748.58; 1950, $3,533.34.

My total income from the farm in 1948 was $4,101.73, in 1949 it was $7,948, and in 1950 it was $7,960.52.

Since the farm was planned, the original water-storage cistern has been reworked and repaired and a new 5,000-gallon cistern built. Complete new plumbing and a pump have been installed. A new milk house and home-made cooler have been built. The barn has been remodeled with lounging shed, milking parlor, and hay-storage space added.

The tenant house was destroyed by fire and was rebuilt in June 1949. Two new stock-water ponds have been constructed. The main farm fences have been rebuilt and put on the contour. All cultivated crops are on Class II land, which has been terraced and is cultivated on the contour. All terraces and diversion outlets are protected by sod.

For the 15 head of cattle there are 30 acres of improved pasture, with 6 acres of alfalfa and grass mixture for hay. There are 3½ acres of tobacco and an adequate garden. Twelve persons have gotten their living from the 40 acres for the past 3 years. I have refused an offer of $17,000 for the farm and buildings.

My tenant and I have done all except the bulldozer work required on the farm. We have constructed our terraces and diversions with farm implements and have made other improvements, too, with very little outside help except for the technical assistance from the Soil Conservation Service planner.

In short, my soil conservation district plan has made it possible for me to make a better living, more easily, and have more leisure time.

SOMETHING WORTH TRYING FOR.—Herschel D. Newsom, Master of the National Grange, announces a Nation-wide essay contest on "Conservation Farming for Abundant Living," with

Herschel D. Newsom (left) and Paul T. Truitt.

$10,000 in prizes offered by the American Plant Food Council, for young men and women through 20 years of age, beginning January 1 and ending March 31, 1952.

Secretary of Agriculture Charles F. Brannan will be Chairman of the National Board of Judges for the contest, other members being Dr. Hugh H. Bennett, Miss Lois M. Clark, Dr. R. Frank Poole, Dr. W. T. Spanton, Miss Jennie Williams, and Dr. M. L. Wilson.

Newsom, in a joint statement with Paul T. Truitt, president of the American Plant Food Council, said that "objectives of the contest are to stimulate new, intensive thought and aggressive action (1) looking toward a continuation and improvement of means and methods emphasizing maximum economical production while (2) at the same time stressing the conservation of our natural resources."

Prospective contestants are urged to enroll in the contest through their nearest subordinate Grange, where full details are available. In the following States contestants may enter the contest and submit their essays through their county agent, vocational-agriculture teacher, or Soil Conservation Service representative: North Dakota, Utah, Arizona, New Mexico, Nevada, Kentucky, Mississippi, Louisiana, Alabama, Florida, Georgia.

The following prizes are offered by the council: National—first prize, $1,000 cash; second prize, $500; third prize, $400; fourth, fifth, and sixth prizes, $300 each; State—first prize, $100 cash; second prize, $50; third prize, $25.

Special consideration should be given to the practical application of the subject to the soils of the contestant's community, and sources of information other than actual experience must be credited by the author. Essays may not be more than 800 words and will be judged on the basis of 40 points for practical application of subject matter, 30 points for effectiveness of presentation, 20 points for originality, and 10 points for spelling, punctuation, and grammatical correctness.

WINDOW DEMONSTRATION.—Helping farmers rid their land of "black alkali" is one of the big problems of the Mason Valley Soil Conservation District in Nevada. In recent years, the district supervisors and Soil Conservation Service technicians have developed a way to treat "black alkali" land that will do the job, provided it is used properly and under the right soil and drainage conditions. Gypsum is used to open the soil so the alkali can be leached out.

At Yerington, headquarters of the Mason Valley district, Conservationist A. G. Bodenstein and Soil Scientist L. N. Langan put on a display in a store window which consisted of two jars, both nearly full of alkali soil. The jars had identical drainage and were given the same amounts of water at regular intervals. One jar was treated with the proper amount of gypsum, the other was not. A placard explained that 20 wheat seeds had been planted in each jar.

Shortly after the display was put in the window, 19 seeds in the gypsum-treated jar germinated and produced shoots up to 6 inches long. In the untreated jar, only one wheat seed germinated.

Most impressive to farmers who had had their land literally sealed tight against moisture penetration by black alkali was the fact that water in the gypsum-treated jar penetrated to the bottom quickly. After several weeks, water in the other jar had entered only about 1 inch deep.

The display will be exhibited in all work units in western Nevada.

RECORD LENGTH?—When cultivation is started in Villard McLaughlin's potato fields at Dyer Brook, Maine, there really is some work out ahead. The rows in contour strips are a mile long. McLaughlin found out that conservation farming really pays by planting one test plot on contour and another with rows running up and down the hill—same size, same day, same seed, same kind and amount of fertilizer. He got 80 more barrels per acre from the contour plot. His farm—the second planned in Southern Aroostook Soil Conservation District—contains 133 acres in strips. He is secretary-treasurer and director in the district, which he has served for more than 10 years.

THE RAINS FELL.—Drainage paid off in the Steele County (Minn.) Soil Conservation District following heavy rains. Four and one-half inches of rain fell in two and one-half hours. Some of the farmers in the Arnold Mortenson group report that they would have had almost total loss of crops had it not been for the drainage which had been installed with technical assistance from the Soil Conservation Service.

U. S. GOVERNMENT PRINTING OFFICE: 1952

SOME TIPS ON AERIAL PHOTOGRAPHY

Widespread interest has been shown in the photographs appearing on the front covers of this publication. Among the many letters we have received inquiring as to the techniques employed in their making is a recent one from D. C. G. Plowes, pasture research officer, Matopos Research Station, Bulawayo, Southern Rhodesia. Hermann Postlethwaite, SCS photographer who has made many of our cover pictures, replies to Plowes in some detail. We are quoting Postlethwaite for the benefit of others in need of such information:

"The oblique aerial views that have appeared in our magazine were for the most part taken by following a rather simple formula: (1) Focus at infinity, all objects will be beyond the infinity point; (2) lens wide open, not necessary to stop down for depth; (3) and shoot with the focal plane shutter at the fastest speed the film in use will allow, basing this speed on a meter reading taken on the ground before going up in the air.

"Answering your questions in the order you asked them:

"(a) The height of the plane is determined by the ground area desired in the picture. The lower the plane flies, the slower it should be flown to eliminate ground speed as much as possible. A good pilot can almost stand it still for the picture. Little consideration to speed is given otherwise. Where possible a Piper Cub type, small two-place plane is used.

"(b) A regular model Speed Graphic camera with focal plane shutter, equipped with a 6-inch Ektar f.4.5 coated lens, working on a 4- x 5-inch film. A between-the-lens shutter has been used with equally good results, but ground speed has to be considered a bit more then, due to the nature of the exposure mechanism.

"(c) The film was Eastman SuperXX Cut Film with an ASA rating of 100. Usually an Aero 1 or Aero 2 filter is used, depending on the amount of haze penetration needed. Actually, days with much ground haze should be avoided.

"(d) Good sharp pictures may be shot at slow speeds, even as slow as 1/25 second, but most aerial work is done at 1/400 second or faster.

"(e) No increase in exposure is taken into consideration. Actually you are not more than 500 to 1,000 feet above the ground for most agriculture shots. A prime consideration, though, is shadows to give contrast relief. Most flights are made in the afternoon, 3 p.m. to 5 p.m., so as to take advantage of the clearer air and the long shadows cast by ground objects. A flight around the object will quickly show the point from which it has the most punch, usually about a quarter, half, or three-quarters light will give the best shadows."

NEW GUIDE TO CONSERVATION READING

U. S. Department of Agriculture
SOIL CONSERVATION SERVICE
Agriculture Information Bulletin No. 63

Attention: Teachers, students, district farmers, implement dealers, civic leaders, and all others who must keep informed on soil and water conservation! Here's news for you:

Available now is a 24-page selected bibliography, tabbed as Agriculture Information Bulletin No. 63. It is the work of Phoebe O'N. Faris, and copies may be obtained from the Washington and regional offices of the Soil Conservation Service.

Thoroughly up-to-date, extensive, descriptive, and convenient in arrangement, this first printed listing of materials in its field is accurately titled, "Books, Booklets, Bulletins, on Soil and Water Conservation."

To quote the introductory note: "Probably, since the end of World War II, more has been published about soil and water conservation than in all years before. It would take a very large volume to list all the good books and pamphlets. This, therefore, is a selected list of nationally important publications. Emphasis is on accurate information and data, the newer trends and developments in our national soil- and water-conservation program, and material suitable for use in schools."

FEB 4 1952
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